Flight

Advanced Strike BFM 4201 T45C

Mission

ADVANCED TACTICAL FORMATION FLYING

ORM

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- **Operational Requirements / Limitations**
  - **Crew Rest / Crew Day / Work Week**
  - **R&I**
  - **IP Currency (SOP)**
  - **Warm Up Eligibility**
  - **Previous Flight Incomplete? Determine Graded Items.**
- **Human Factors**
  - **Life Stressors / External Factors / Personal Problems**
  - **Medical Status (Rest / Nourishment / Hydration)**
- **Hazards and Controls**
  - **Routine**
  - **Weather**
    - **Current Observations and Forecasts**
    - **Crosswinds**
    - **Fuel Considerations**
  - **Mission Specific**

Flight Brief

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- **Brief**
  - **a. QOD (NATOPS / EP / SOP)**
  - **b. Position corrections after random maneuvers**
  - **c. .5nm co-altitude maneuvering**
  - **d. 1.5nm co-altitude maneuvering**
- **Review**
  - **a. Defensive Combat spread**
    - **1. Check turns, tac turns, in-place turns, and shackles (on/off heading)**
  - **b. Advanced Tac Form maneuvering**
    - **Long and short tac turns (60/120)**
    - **Short in-place turns (150)**
    - **Turns in rapid succession**
  - **c. Combat checks**
  - **d. Combat spread responsibilities**
  - **e. Lead home (recommended)**
  - **f. Landing(s)**
- **Introduce**
  - **a. .5nm / co-altitude / 200 KIAS tac form**
  - **b. 1.5nm / co-altitude / 300 KIAS tac form**
- **Demonstrate (fuel permitting)**
  - **a. Flats entry**
  - **b. Roller entry**
  - **c. 6K' entry**

Maintaining Combat Spread

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- **Priorities**
  - **1. Bearing Line**
    - **Airspeed dependent(may need to account for a 5 kt TAS difference with 1000’ of altitude difference)**
  - **2. Abeam distance**
  - **3. Altitude**

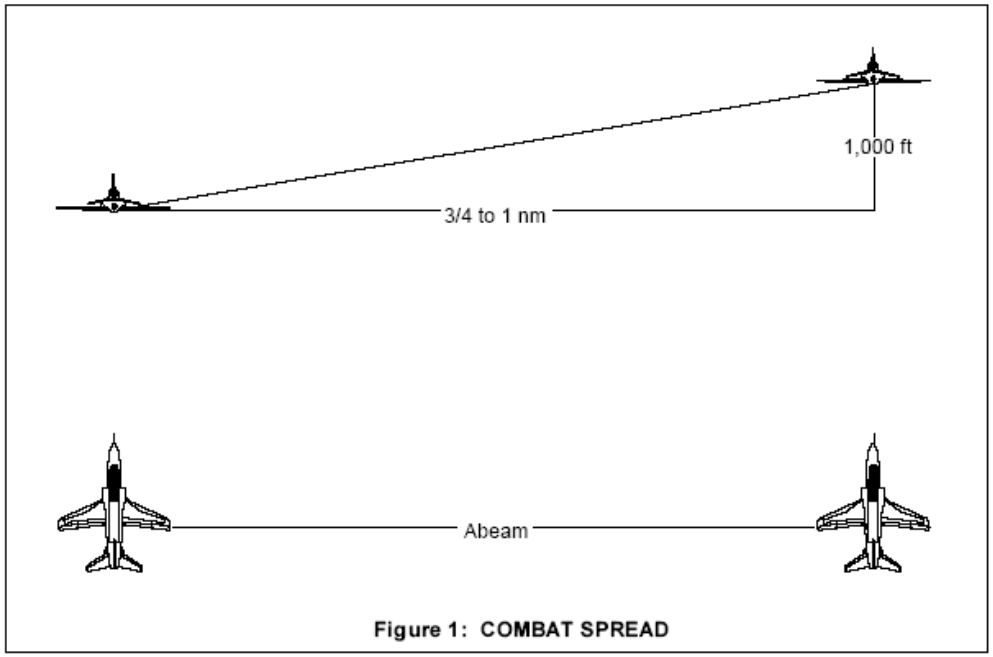

Figure 1: COMBAT SPREAD

Combat Spread Corrections

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- **If Sucked**
  - **Wingman needs to accelerate via unload and power addition to reach bearing line.**
- **If Acute**
  - **Wingman needs to decelerate. Different techniques available: 1) Climb to decelerate or 2)maintain altitude, take a cut away and then back into lead to slow downrange travel.**
- **If wide or acute,**
  - **Wingman needs to fly toward or away as appropriate. Care should be given to add enough airspeed and not to turn too much, as doing so will trade the wingman's wide or tight for a sucked position.**

Check Turns

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- **Into**
  - **Turn will make you acute.**
  - **Multiple techniques to fix position.**
  - **Big Picture: Slow your down range travel compared to lead, then fix your altitude and abeam distance.**
- **Away**
  - **Turn will make you sucked.**
  - **Big Picture: Increase your down range travel compared to the lead (ie. lower your nose and increase your airspeed), then fix your altitude and abeam distance.**

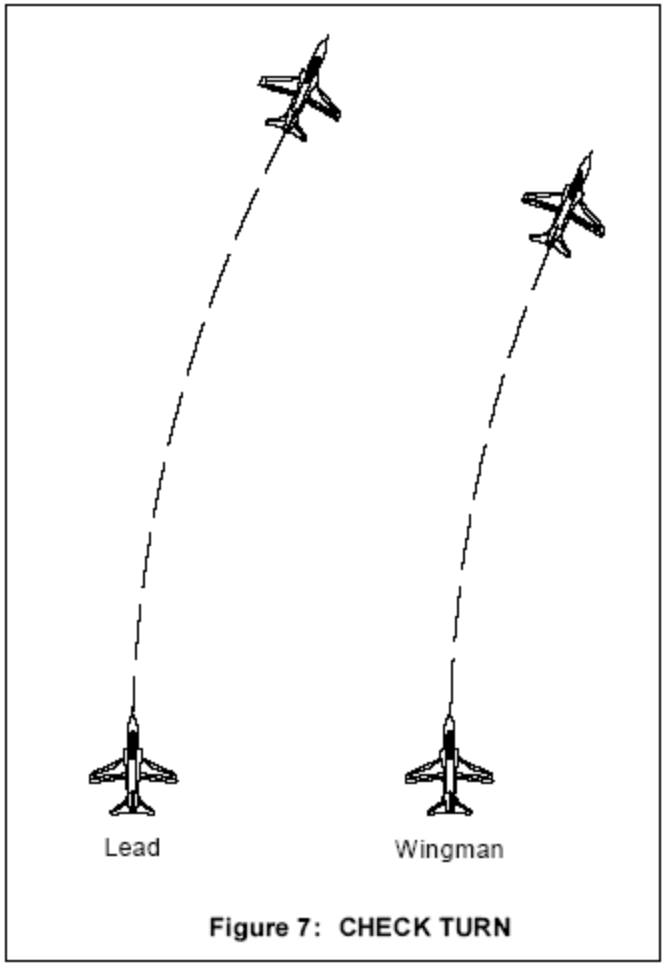

Figure 7: CHECK TURN

Tactical Turns

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- **Into**
  - **Wait until looking down lead's intakes.**
  - **Start a level 14 unit pull to the new heading while maintaining 300 KIAS.**
  - **Adjust timing of turn, amount of pull, and airspeed as necessary to come out of turn in position.**
- **Away**
  - **Start a level 14 unit pull to the new heading while maintaining 300 KIAS.**
  - **Make adjustments to fix positioning.**

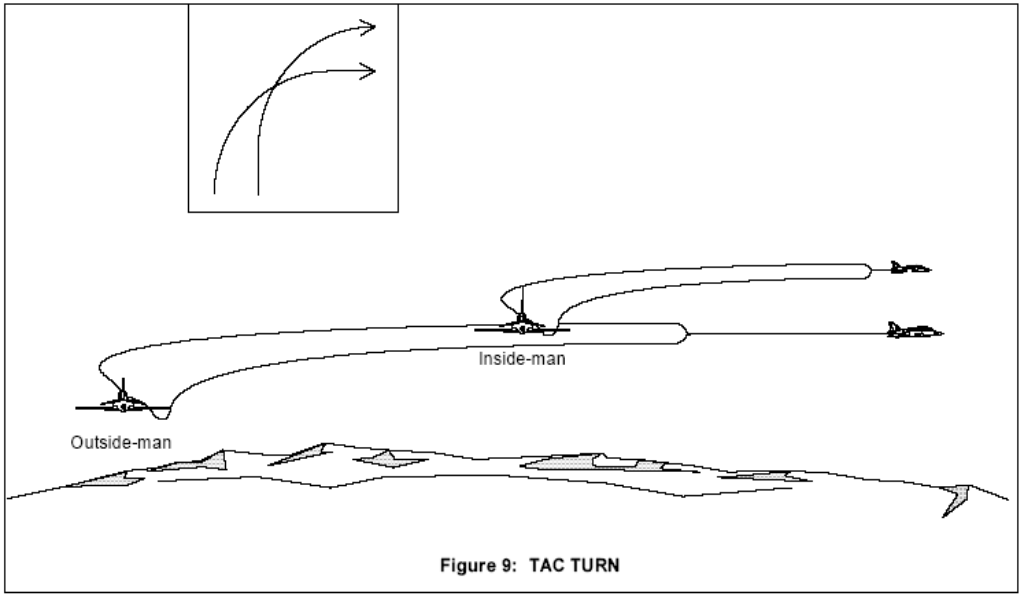

Figure 9: TAC TURN

Off Heading Tac Turns

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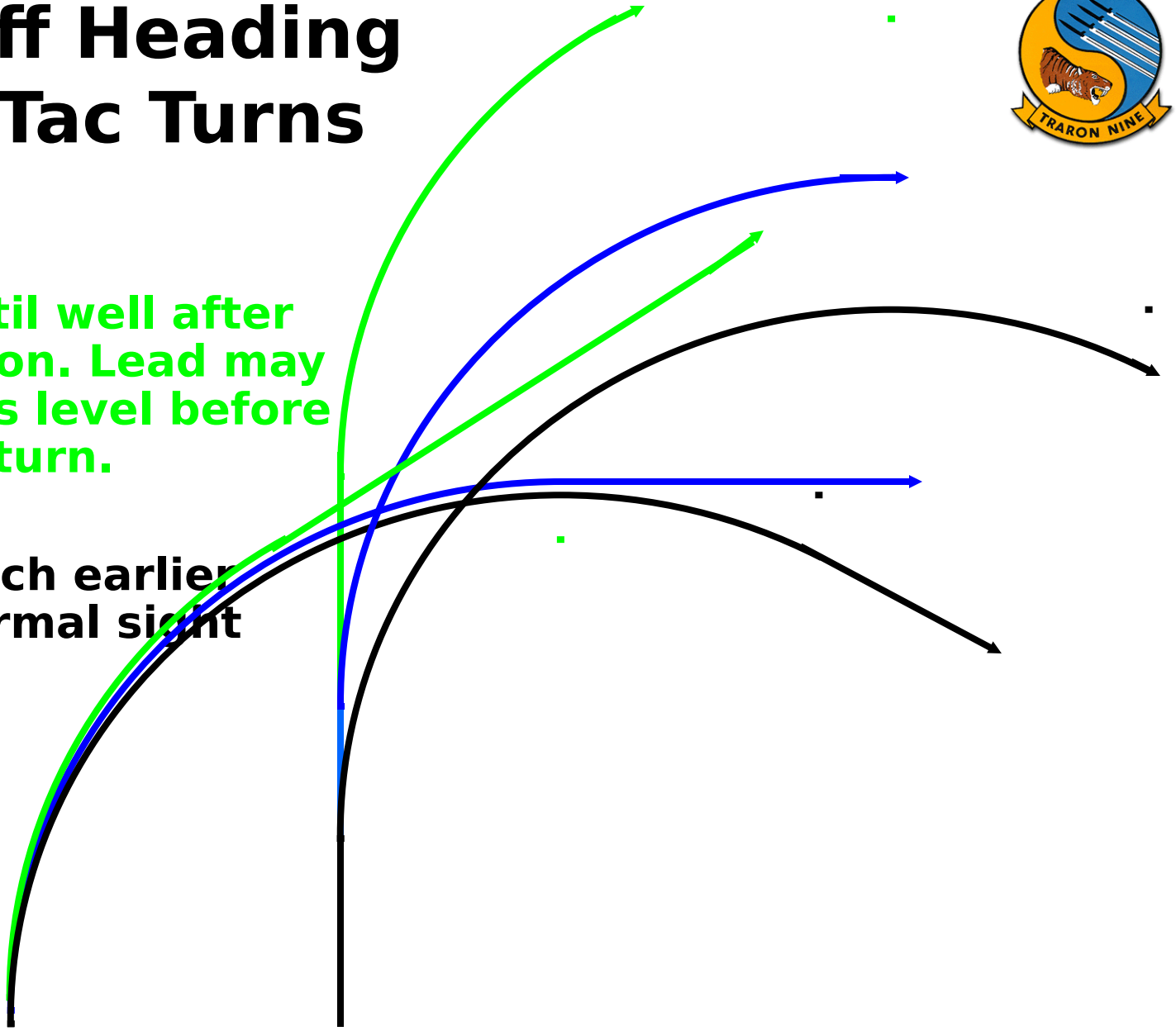
- **60° Turns**
  - **Wait until well after intakes on. Lead may be wings level before time to turn.**
- **120° Turns**
  - **Turn much earlier than normal sight picture**



In-Place Turns

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- **Into**
  - **Make a level 14 unit turn for 180°, maintain 300 KIAS.**
  - **Corrections for sucked / acute start.**

- **Away**
  - **Make a level 14 unit turn for 180°, maintain 300 KIAS.**
  - **Corrections for sucked / acute start.**
  - **Do NOT float the turn when belly up to lead!**

Off Heading In Place Turns

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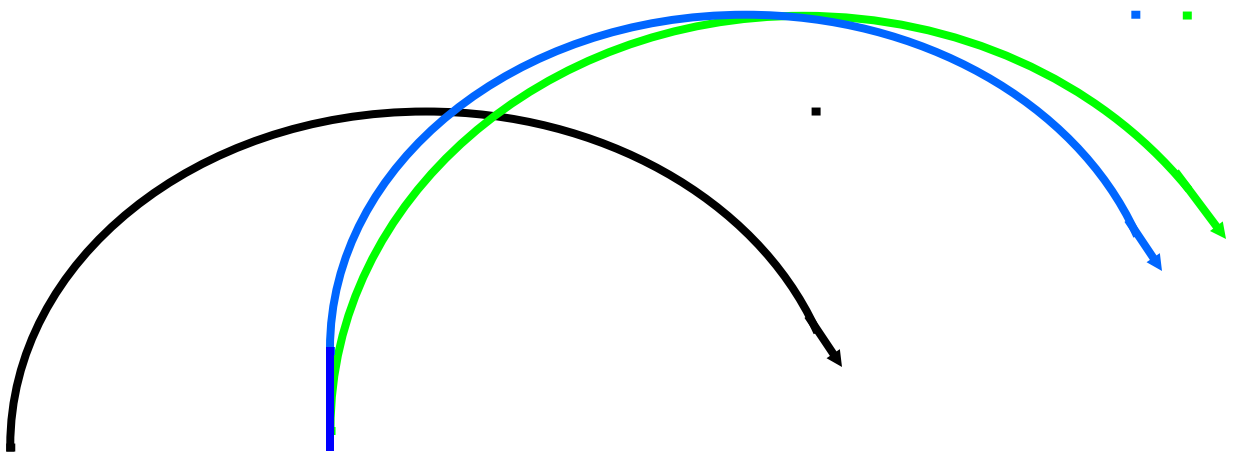
–150° Turn Into-

- **Different techniques available.**
  - **Pull less than 14 units(13-13.5)**
  - **Or Delay pull, then 14 units**



150° Turn Away

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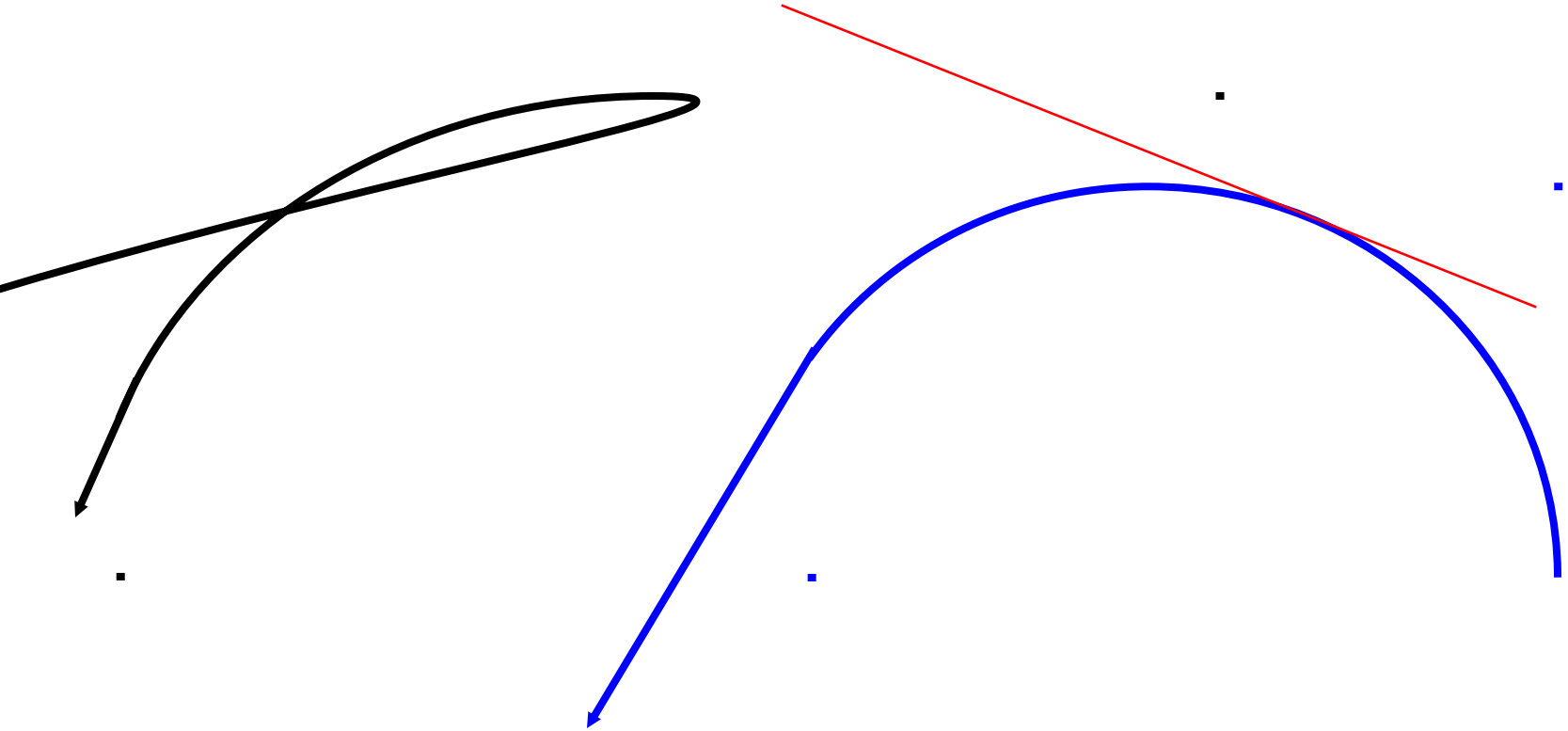
-Pull harder. Still use 90° from final heading check point (probably still sucked and will need to continue stronger pull)-roll out on final and correct as necessary.



Shackle Turns

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- **14 unit level turn into lead, putting the original heading on the 45° benchmark (o as appropriate to help fix your position).**
- **Maintain 300 KIAS keeping altitude separation from lead.**
- **Wait approx 2 sec then pull 14 units back to the original heading. (Corrections for sucked / acute.**

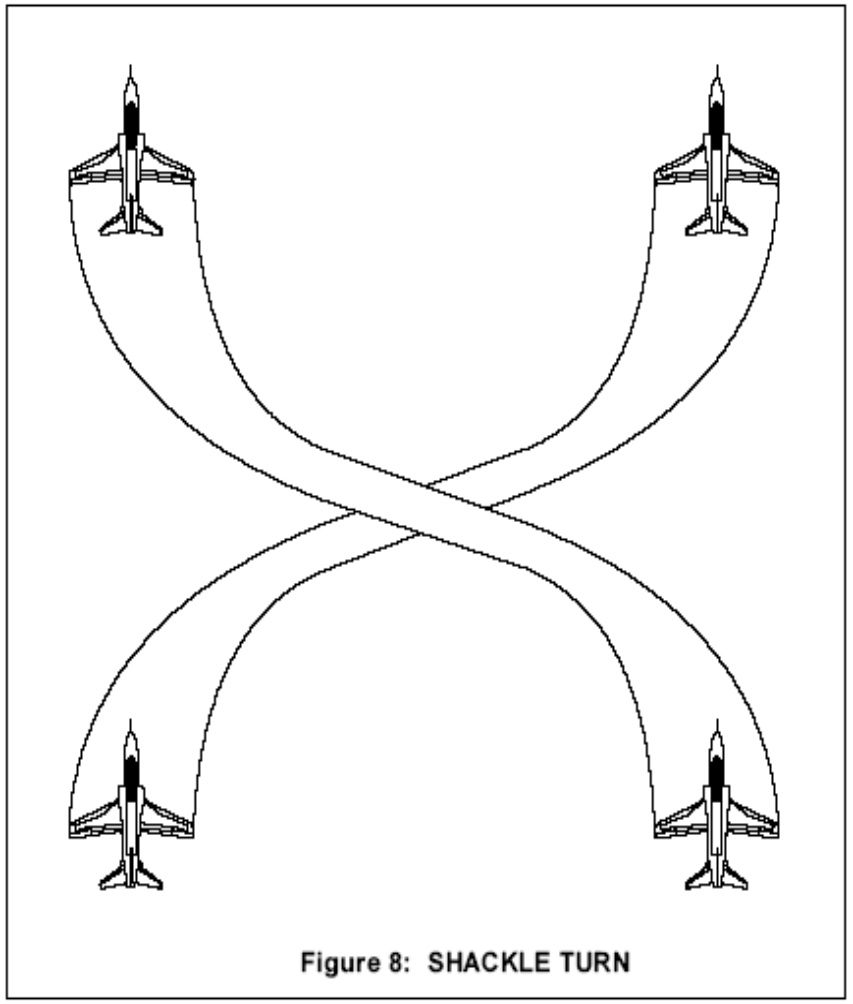

Figure 8: SHACKLE TURN

Off Heading Shackle Turns

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- **Turn to 45° past eventual heading.**
- **If wingman’s turn is less than 45°, delay reversal.**
- **If wingman’s turn is greater than 45°, then reverse upon reaching reversal heading.**

Intro: 16K’ co-alt / .5nm / 200 KIAS Tac turns

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- **Throttle as necessary to maintain 200 KIAS.**
- **Call pass (high/low) if necessary.**
- **Pull 17 units.**
- **If on bearing line, start turn well prior to intakes on.**
- **If out of position, start turn as necessary per previous discussion.**

Intro: 16K' co-alt / .5nm / 200 KIAS In-place turns

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- **Throttle as necessary to maintain 200 KIAS.**
- **Pull 17 units if on bearing line.**
- **Pull as necessary if starting out of position per previous discussion.**
- **Strive to look down lead's exhaust through 90 degrees of turn.**
  - **Adjust pull as necessary according to your position at the 90 degree benchmark.**

Intro: 16K' co-alt / .5nm / 200 KIAS Shackles

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- **Call pass as necessary (high/low).**
- **Maintain 17 units to 45 benchmark if on bearing line to start.**
  - **Pull as necessary, or more/less than 45 degrees if out of position to start.**
- **Reverse turn as you cross over lead's aircraft (if on bearing line).**
  - **Reverse as necessary if out of position.**

Intro: 16K’ co-alt / 1.5nm / 300 KIAS turns

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- **1.5nm Abeam**
- **Tac Turns- Turn slightly later than normal sight picture (Lead’s intakes on).**
- **In place- No different from DCS or .5nm**
  - **Dependent upon bearing line to start.**
- **Shackle- Delay about three seconds longer after merge to reverse**
  - **Dependent upon bearing line to start.**

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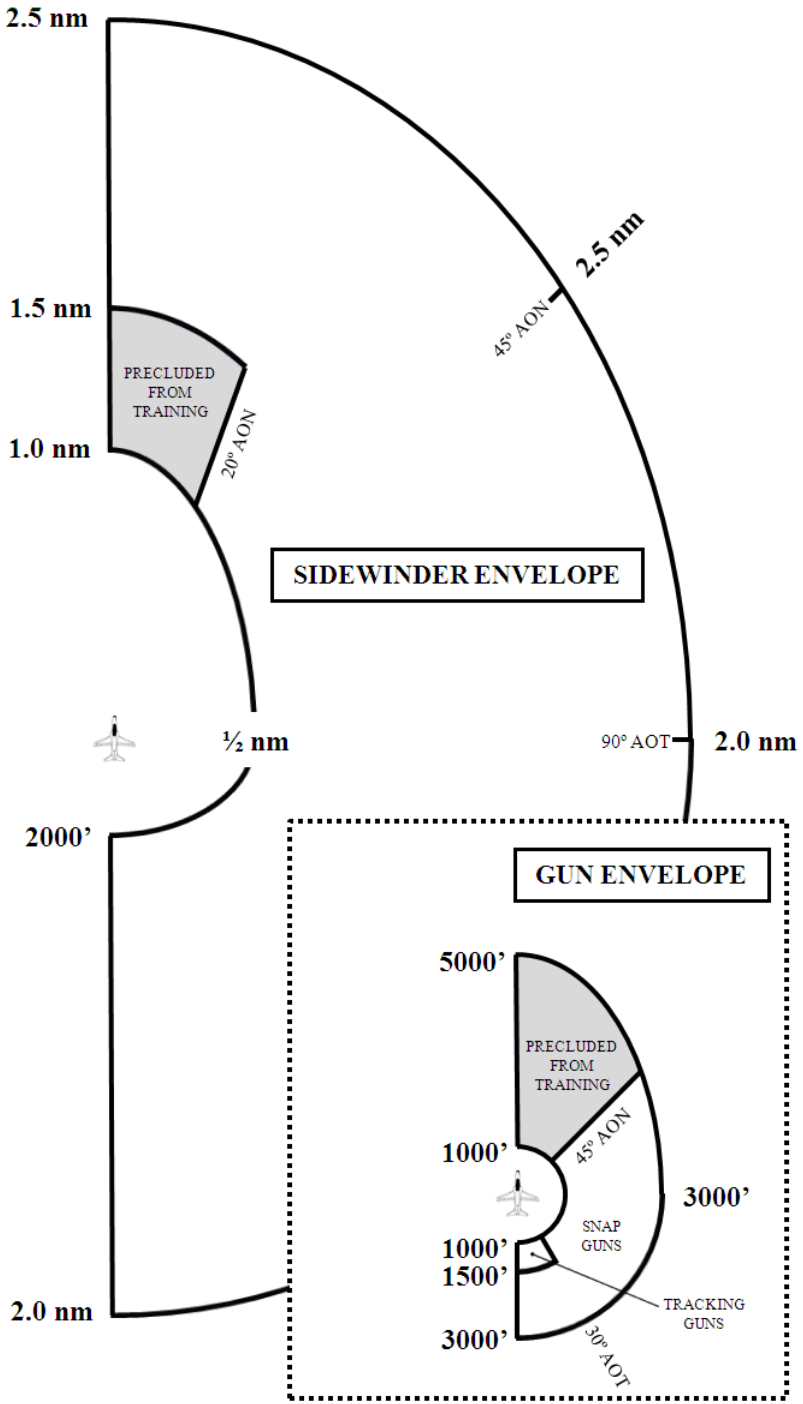
LAR / WEZ

Employing weapons inside the shaded areas labeled “PRECLUDED FROM TRAINING” is a Training Rule violation and will treated as such.



Demo: Flats entry (fuel permitting)

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- **PADS: D+ 5K' / .5nm abeam / 200 KIAS**
- **Speed and angles (right/left)**
- **"3,2,1…Fight's on"**
  - **MRT at "3"**
  - **Echo "Fight's on" call.**
  - **At "Fight's On" longitudinal pull up. Turn in with the pass called.**

- **BAW**
  - **Hi AOA and Slow Speed**
    - **Target 130-150 KIAS at 23-24 AOA**

Demo: Roller entry (fuel permitting)

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- **PADS: D+ 6K' / .5nm abeam / 200 KIAS**
- **Speed and angles (right/left)**
- **"Check right/left 45"**
- **"Bandit's going up"**
  - **MRT at the "B" in "bandit's going up"**
- **Four Step Process**
  1. **Wings level compromise pull up (16-17 AOA)**
  2. **Max perform up and across the horizon (keep your nose high attitude) till horizontal overshoot**
     1. **Target 35 to 45 degrees nose high**
  3. **Pirouette (idle, unload, roll, pull)**
     1. **Lift Vector Placement (slightly aft typically)**
     2. **Target 50-60 degrees nose low**
  4. **Lift limit pull to step one keeping LV slightly aft**
     1. **Target 200 to 230 KIAS at the bottom**

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Demo: 6K' (fuel permitting)

- **PADS 6K' (First)**
  - **Abeam / D+6K' / 1.5nm / 350 KIAS**
    - **300 KIAS, level accel to 350 KIAS from D+6K'**
    - **Maintain till "Fight's On"**
      - **+/- 10 degrees from 40 degrees AOT at "Fight's On"**
- **Check 50 L/R into defender**
  - **Defender Reverses at heading to put offender at 40 deg AOT**
  - **Offender calls "reverse" at canopy bow if defender has not reversed yet**
- **Countdown ranges**
  - **"Hammer 11 in from X.X…"**
  - **"Fox-2" or "Fight's On" at 1.0nm 6k / 1.5nm 9k**

Flight Brief (cont)

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- **Unknown Airspeed Rendezvous**
  - **Continue flying good Tacform until Fenced Out (Master Arm off with Gun deselected and the HUD back in the normal mode).**
    - **When joining, make the rendezvous look like one that you have practiced before. Keep an altitude sanctuary until it is suitcased.**
    - **Lead will be setting the power and turning to put the RTB heading on the nose. Take your time joining and make it look good.**

COORDINATION BRIEF

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- **All members of flight required to attend the rest of the brief**

ADMIN

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- **ORM**
  - **Mission Specific**
- **TTO**
- **Weather / NOTAMS / TFR / BASH**
  - **Launch / Enroute / Recovery / Divert**
  - **Environmental Data**

Training Rules - Short

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Administrative

- *Departure/spin. Compressor Stall/EGT/RPM.
- Face to face brief.
- *Currency: All in flight have flown: 1 in 6, 2 in 14 (<750 hrs) or 1 in 14, 2 in 30 (>750 hrs).
- All aircraft must have operable UHF/ICS (multi-place) and monitor Guard

Weather, Decks and Blocks

- Conducted in an authorized area from 30 min past sunrise to 30 min prior to sunset
- Weather: VMC, 5 miles visibility and a defined horizon.
- Maintain 2,000 feet vertically and 1 mile horizontally from all clouds.
- *Decks
  - Hard Deck: 10,000 ft AGL minimum or 5,000 ft above an undercast, provided the highest layer is 7,000 ft AGL solo / 8,000 ft AGL dual.:
  - Soft Deck: 5,000 ft above the hard deck.
    - No slow speed or high AOA maneuvering below the soft deck (less than 120 KIAS or more than 24 units sustained for more than 3 seconds).
- Configuration changes other than speed brakes are prohibited.

Pre-commencement of ACM

- Execute G-warm

Commencement of ACM

- Maintain 500 ft separation between all aircraft at all times.
- Always assume the other aircraft does not see you.
- For head-on passes, maintain the established trend. When no trend exists, give way to the right for a left-to-left pass. Broadcast your own intentions.
- For converging flight paths, nose-high goes high. Nose low has collision avoidance responsibility. Broadcast your own intentions.
- Never intentionally maneuver to lose sight (no blind lead turns).
- If lose sight, transmit “c/s blind” or “c/s blind, sun” and turn away from predicted collision bearing. Other aircraft shall respond with “c/s continue” or “c/s blind, altitude.” Up-sun aircraft is responsible for collision avoidance. Knock-it-off any time deconfliction is not assured.
- SEM Events: Without tally/visual, aircraft shall conduct belly checks every 90 degrees of turn.
- Call “ballistic” for slow speed reduced maneuverability <100 KIAS
- No head-on missile attacks inside 9,000 ft (1.5nm).
- No forward quarter gun attacks. Break off all gun attacks at 1,000 ft.
- Terrain Avoidance: Offensive (high) aircraft will monitor the defensive (low) aircraft’s altitude, attitude, and airspeed and will break off the attack prior to pushing the defensive aircraft through the hard deck.

Termination of ACM

- ACM shall cease when “Knock it off” is called or an aircraft is rocking its wings.
  - “Knock it off” for:
    - Interloper.
    - Departure / spin.
    - G-LOC (mandatory RTB).
    - Min alt Broken.
    - Nordo / ICS Failure.
    - Overstress.
    - Inadvertent IFR.
    - Loss of SA / any unsafe condition.
    - 85 KIAS and decelerating.
    - Training objectives attained.
    - In a BFM engagement, both a/c lose sight approaching area boundary.
- Be aware of the high midair collision potential following a “knock it-off” call.

ADMIN

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Kneeboard Card Review

- **General**
  - Working Area
  - ATC Clearance
- **Communication Plan**
  - Presets / Manual Freqs / Controlling Agencies
  - Initial Check-in / In-flight Check-Ins / Post-landing
- **Navigation**
  - NAVAIDS / A/A TCN / Waypoint Plan
  - RADALT Procedures
- **Performance Data**
  - RPM (Start / MRT) / Line Airspeed / Takeoff (Rotation / NWLO) / Abort

ADMIN

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- **Ground Operations**
  - **Preflight**
  - **Start**
  - **Marshal / Taxi**
- **Take-off / Departure / Route of Flight**
  - **Type take-off / Departure Procedures**
  - **Formation Rendezvous**
  - **Route of Flight**
- **Recovery**
  - **Fuel Management / Joker / Bingo**
  - **Final KIO / Final Rendezvous**
  - **Type Recovery / Route / Formation**
- **Debrief**
  - **Products (Tape set to the SSD)**
  - **E-Brief Open to Debrief Slides**

TAC ADMIN

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- **A/A / A/G Setup**
- **Environmentals**
  - **Sun / Wind / Decks (Altimeter)**
- **G-Warm / Inverted Check**
- **FENCE In**
- **Ops and G Checks**
- **KIO (low / high SA)**
  - **Fly to PADS**
- **Final KIO / FENCE Out**
- **BD Checks**

MISSION

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- **Block requirements (per card)**
  - **PA?**
  - **SNA Lead Home?**
  - **Other?**

- **Event Flow**
  - **Practice Items**
  - **Introduce Items**
  - **Demo Items**

CONTINGENCIES

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- **AIRCRAFT FALLOUT**
- **CLEAR ENGINE PROCEDURE**
- **ABORTED TAKEOFF**
- **RWY DEP / LOSS OF DIRECTIONAL CONTROL**
- **SYSTEM FAILURES/ EPs / CRM**
- **BIRD STRIKE/ MIDAIR**
- **RADIO/ ICS FAILURE**
- **LOSS OF NAVAIDS / LOST PLANE**
- **INADVERTENT IMC / LOST SIGHT / LCLS**
- **DISORIENTATION / VERTIGO**
- **HYPOXIA**
- **EJECTION (HIGH / LOW / GROUND)**
- **SAR / ON SCENE COMMANDER**
- **DIVERT(S) / BINGO FUEL TO DIVERT**

QUESTIONS???